

FUTURIA power



Sold and serviced by:
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INSTRUCTIONS FOR USE, INSTALLATION AND MAINTENANCE



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1. GENERAL INSTRUCTIONS

- Carefully read the instructions contained in this instruction booklet and store booklet in a safe place.

- After boiler installation, inform the user regarding its operation and give them the instruction manual, this is an integral and essential part of this product and must be kept with care for future reference.

- Installation and maintenance must be carried out by professionally qualified trained personnel in accordance with national installation code AS/NZ 5601 and any relevant electrical and local requirements and the manufacturer's instructions. Do not carry out any operation on the sealed control parts.

- Incorrect installation or inadequate maintenance can result in damage or injury.

The manufacturer declines any liability for damage due to errors in installation and use or failure to follow the instructions.

- Before carrying out any cleaning or maintenance operation, disconnect the unit from the power supply using the system isolating power switch.

- In case of a fault and/or poor operation, deactivate the unit and do not attempt to repair it or directly intervene. Contact professionally qualified trained personnel at Hurlcon heating. Repair and replacement of the parts must only be carried out by a qualified technician using original spare parts. Failure to comply with the above could affect the safety and warranty of the unit.

- This unit must only be used for its intended purpose. Any other use is considered improper and therefore hazardous. (Not for use as a pool heater).

- After removing the packing, check the integrity of the contents. If in doubt do not use the unit and report this directly to the supplier Hurlcon Heating. Packing materials are potentially hazardous and must not be left within the reach of children.

- The images given in this manual are a simplified presentation of the product only.

2. OPERATING INSTRUCTIONS

2.1 Introduction

Dear Customer,

Thank you for choosing the Lamborghini FUTURIA power, one of the latest-generation in heat generators, featuring advanced design and cutting-edge technology.

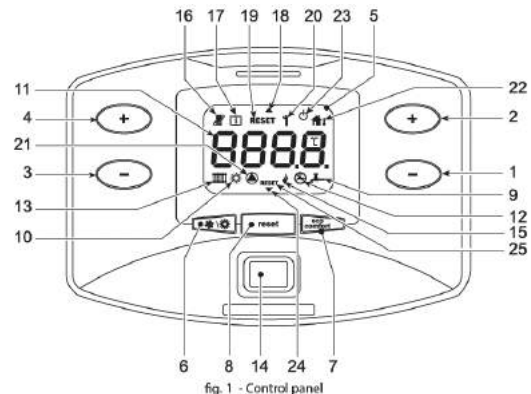
Please read this manual carefully since it provides important information on safe installation, use and maintenance.

The Lamborghini FUTURIA power condensing boiler is a high-efficiency modular premix heat generator for heating with very low operating emissions, running on **Natural gas** or **LPG** and can be arranged for installation in both single and cascade format if required.

Each module FUTURIA power is equipped with one single (version **80 - 125**) or with twin (version **160 - 250**) boiler with aluminium finned tube exchangers with steel premix burners, housed in a vertical cabinet finished in epoxy powder coated steel to resist atmospheric agents.

The plumbing circuits of the heat exchangers, each equipped with its own local circulating pump, combine into system Flow and return manifolds inside the module. The control system has a microprocessor, user interface with a large display and advanced cascade control functions.

2.2 Control panel



The control panel is located inside the cabinet. Access is via a steel lockable front door opened with special key supplied.

Operation Key

1= DHW temperature setting decrease button (with optional hot water tank installed).

2= DHW temperature setting increase button (with optional hot water tank installed).

3 = Heating system temperature setting decrease button.

4 = Heating system temperature setting increase button.

5 = Display.

6 = Summer/Winter mode selection button.

7 = Economy/Comfort mode selection (with optional hot water tank installed) and unit On/Off button.

8 = Reset button.

9 = DHW operation (with optional hot water tank installed).

10 = Summer mode.

11 = Multifunction.

12 = Eco (Economy) mode (with optional hot water tank installed).

13 = Heating mode.

14 = Unit On / Off button.

15 = Burner On.

16 = Appears on connecting the Remote Timer Control (optional).

17 = Information symbol.

18 = Top boiler shell.

19 = Top boiler shell system fault reset request.

20 = Fault.

21 = Circulating pump on.

22 = Appears on connecting the external probe (optional)

23 = Boiler off.

24 = Bottom boiler shell.

25 = Bottom boiler shell system fault reset request (model 160 -250only).

Indication during operation heating

A heating demand (generated by the room thermostat or remote timer Control or 0-10 Vdc signal) is indicated by activation of the circulating pump and the radiator (details shown 13 & 21 - Fig. 1).

The display (detail 11- Fig. 1) shows the actual heating delivery temperature and, during heating standby time, the message "d". Activation of the arrows (details 18 and 24 - Fig. 1) indicates which boiler module shell is in operation.

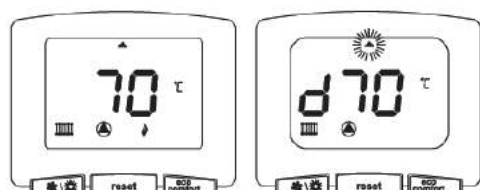


fig. 2

DHW (with optional hot water tank installed)

A potable hot water tank heating demand is indicated by activation of the circulating pump and the tap display (details 9 & 21- Fig. 1).

The display (detail 11 - Fig. 1) shows the actual hot water tank sensor temperature and, during heating standby time, the message "d". Activation of the arrows (details 18 and 24 - Fig. 1) indicates which boiler module shell is in operation.

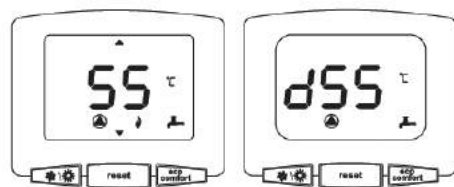


fig. 3 -

Exclude hot water storage tank (economy)

Hot water tank temperature maintaining/heating can be excluded by the user. If excluded, domestic hot water will not be delivered. The hot water tank can be deactivated by the user (ECO mode) by pressing the **eco/comfort** button (detail 7 - Fig. 1). In ECO mode the display activates the

symbol (detail 12 - Fig. 1). To activate the COMFORT mode, press the **eco/comfort** button (detail 7 - Fig. 1) again.

2.3 Lighting and turning

Boiler lighting

Press the On/Off button (detail 14 Fig 1).

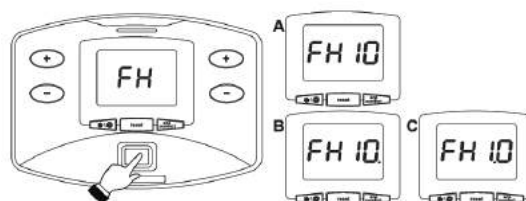


fig. 4 - Boiler lighting

- For the following 120 seconds the display will show **FH** which identifies the heating system pre-purge air venting cycle.

- During the first 10 seconds the display will also show the software version of the programming card:

A = Display card software version
B = Top boiler shell control unit software version
C = Bottom boiler shell control unit software version (model FUTURIA power 160 -250 only).

- Open the gas cock supply valve to the boiler.

- When the message **FH** disappears, the boiler is ready to operate automatically, when the room thermostat is in the demand mode.

Turning the boiler off

Press the button (**eco comfort** detail 7 – Fig. 1) for 5 seconds.

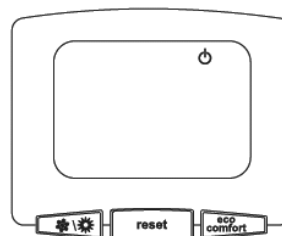


fig. 5 - Turning the boiler off

When the boiler is turned off, the PCB is still powered. Domestic hot water (with optional hot water tank installed) and heating operation are disabled. The antifreeze system remains activated. To relight the boiler, press the button **eco comfort** detail 7 Fig. 1) again for 5 seconds.



fig. 6



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The boiler will be immediately ready to operate whenever domestic hot water is drawn (optional hot water tank installed) or in case of a room thermostat demand.

To completely disconnect the power to the unit, press the button detail 14 Fig.1B. The antifreeze system will not work when the power and/or gas to the unit are turned off.

To avoid damage caused by freezing during long idle periods in winter, it is advisable to drain all water from the boiler, DHW circuit and system; or drain just the DHW circuit and add an approved antifreeze to the heating system, complying with that prescribed in sec. 3.3.

2.4 Adjustments

Summer/Winter Switchover

Press the button, **Summer** ☀ / * **Winter** detail 6 - Fig. 1 for 1 second.

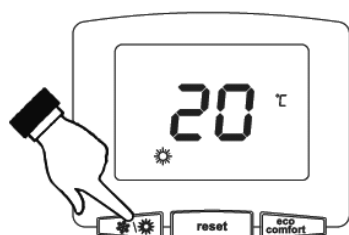


fig. 7

The display activates the Summer symbol detail 10 - 1. The heating function is deactivated, whereas the possible production of domestic hot water (with optional external hot water tank) remains activated. The antifreeze system remains activated.

To deactivate Summer mode, press the button (detail 6 - Fig. 1) again for 1 second.

Heating temperature adjustment

Use the heating buttons + / - (details 3 and 4 - Fig. 1) it is possible to adjust the temperature from a min of 20°C to a max of 90°C.

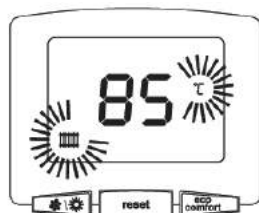


fig. 8

DHW temperature adjustment (with optional hot water tank installed)

Use the DHW buttons (details 1 and 2 - Fig. 1) to adjust the temperature from a min. of 10°C to a max of 65°C.

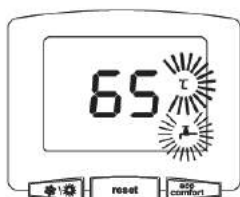


fig. 9

Room temperature adjustment (with optional room thermostat)

Using the room thermostat, set the personal temperature requirement for the building.

Room temperature adjustment (with optional remote timer control)

Using the remote timer control, set the temperature desired in the rooms. The boiler unit will set the system water according to the required room temperature. For information on the remote timer control, please refer to its user's manual.

Sliding temperature

When the optional external ambient sensor probe is installed the corresponding symbol (detail Fig 122 -) is activated on the control panel display (detail 5 - Fig. 1). The boiler control system operates with "Sliding Temperature". In this mode, the heating system temperature is adjusted according to the outside weather conditions, to ensure both high comfort and energy saving throughout the year. In particular, as the outside temperature increases, the system delivery water temperature is decreased according to a specific "compensation curve".

With Sliding Temperature adjustment, the temperature set with the heating buttons + / - (details 3 and 4 - Fig. 1) becomes the maximum system delivery temperature. It is advisable to set a maximum value to allow system adjustment throughout its useful operating range.

The boiler must be adjusted at the time of installation by trained qualified personnel. Final adjustments can be made later if required by the user, to improve comfort.

Compensation curve and curve offset.

Press the button **RESET** (detail 8 - Fig. 1) for 5 seconds, to display the actual compensation curve (Fig. 10) which can be modified with the DHW buttons + / - (details 1 and 2 - Fig. 1).

Adjust the required curve from 1 to 10 according to the characteristic (Fig 12). By setting the curve to 0, sliding temperature adjustment is disabled.

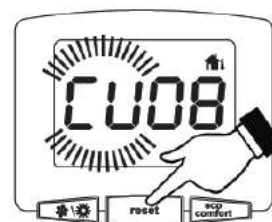


fig. 10 - Compensation curve

Press the heating buttons + / - (details 3 and 4 - Fig. 1) to access parallel curve offset (Fig 13), adjustable with the DHW buttons + / - (details 1 and 2- Fig. 1).



fig. 11 - Curve parallel offset

Press the button **reset** (detail 8 - Fig 1) again for 5 seconds to exit parallel curve adjustment mode.

If the room temperature is lower than the required value, it is advisable to set a higher order curve and vice versa. Proceed by increasing or decreasing in steps of one then check the results in the room.

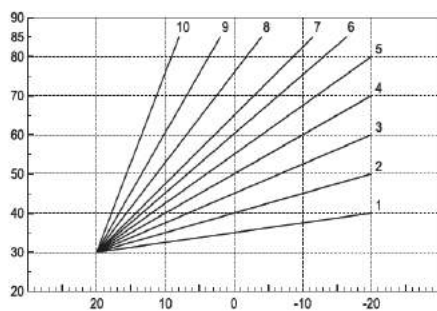


fig. 12 - Compensation curves

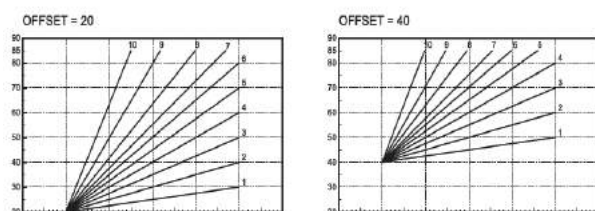


fig. 13 - Example of compensation parallel curve offset

A If the Remote Timer Control (optional) is used to set the boiler, the above adjustments are managed according to that given in table 1.

Table. 1

Heating temperature adjustment	Adjustment can be made from the Remote Timer Control menu and the boiler control panel.
DHW temperature adjustment (with optional hot water tank installed)	Adjustment can be made from the Remote Timer Control menu and the boiler control panel.
Summer/Winter Switchover	Summer mode has priority over a possible Remote Timer Control heating demand.
Eco/Comfort selection (with optional hot water tank installed)	On disabling DHW from the Remote Timer Control menu, the boiler selects the Economy mode. In this condition, the button fig. 1 detail 7 - on the boiler panel is disabled. On enabling DHW from the Remote Timer Control menu, the boiler selects the Comfort mode. In this condition it is possible select one of the two modes with the button detail 7 - fig. 1.
Sliding Temperature	Both the Remote Timer Control and the boiler card manage Sliding Temperature adjustment: of the two, the Sliding Temperature of the boiler card has priority.

System water pressure adjustment

The filling pressure with the system cold must be approx. 1.0 bar. If the system pressure falls to values below minimum, the boiler card will activate **fault F37** (Fig 14). Flashing of the arrows (details 18 & 24 - Fig 1) together with the error code indicates which boiler shell is in fault status.



fig. 14 - Low system pressure fault

A Once the system pressure is restored, the boiler will activate the 120-second per purge air venting cycle indicated on the display by FH.

3. INSTALLATION

3.1 General Instructions

THE BOILER MUST ONLY BE INSTALLED BY TRAINED QUALIFIED PERSONNEL, IN COMPLIANCE WITH ALL THE INSTRUCTIONS GIVEN IN THIS TECHNICAL MANUAL, THE PROVISIONS OF CURRENT LAWS, NATIONAL AND LOCAL REGULATIONS, PLUS THE RULES OF PROPER WORKMANSHIP.

FUTURIA power is a hot water heat generator that can be operated alone or in cascade (group). When two or more generators are installed in cascade with the original installation kits following the installation requirements laid down by Lamborghini in this manual, they can be considered as a single heat generator of total power equal to the sum of the powers of all the units connected in cascade.

All the requirements of the current standards and regulations applicable to this "equivalent" total heating capacity generator must be met. In particular, the location and place of installation, safety devices and the fume exhaust system must be adequate for the total heating capacity of the bank of units. In fact, each FUTURIA power is a complete and independent heat generator, equipped with its own safety devices. In case of over temperature, (no water or no circulation in the unit), the protection devices cause the unit or units to shutdown, preventing its operation.

The installation instructions given in the following paragraphs concern single units and connection in cascade. Given below are the possible configurations for connection in cascade

Table 2 - Configurations in line

Heating power	Combinations					Ø;	A
max. kW	Model Module 1	Model Module 2	Model Module 3	Model Module 4	Model Module 5		
75	80	/	/	/	/	/	500
116	125	/	/	/	/	/	500
150	160		/	/	/	200	1000
232	250		/	/	/	200	1000
225	160	80	/	/	/	200	1500
266	160	125	/	/	/	200	1500
307	250	80	/	/	/	200	1500
348	250	125	/	/	/	200	1500
300	160	160	/	/	/	200	2000
382	250	160	/	/	/	200	2000
464	250	250	/	/	/	200	2000
375	160	160	80	/	/	200	2500
416	160	160	125	/	/	200	2500
457	250	160	80	/	/	200	2500
498	250	160	125	/	/	300	2500
539	250	250	80	/	/	300	2500
580	250	250	125	/	/	300	2500
450	160	160	160	/	/	300	3000
532	250	160	160	/	/	300	3000
614	250	250	160	/	/	300	3000
696	250	250	250	/	/	300	3000
525	160	160	160	80	/	300	3500
566	160	160	160	125	/	300	3500
607	250	160	160	80	/	300	3500
648	250	160	160	125	/	300	3500
689	250	250	160	80	/	300	3500
730	250	250	160	125	/	300	3500
771	250	250	250	80	/	300	3500
812	250	250	250	125	/	300	3500
600	160	160	160	160	/	300	4000
682	250	160	160	160	/	300	4000
764	250	250	160	160	/	300	4000
846	250	250	250	160	/	300	4000
928	250	250	250	250	/	300	4000
1003	250	250	250	250	80	300	4500
1044	250	250	250	250	125	300	4500
1078	250	250	250	250	160	300	5000
1160	250	250	250	250	250	300	5000

Table 3 - Opposed configurations

Heating capacity	Combinations					Ø;	A
max. kW	Model Module 1	Model Module 2	Model Module 3	Model Module 4	Model Module 5		
150	80	80	/	/	/	200	500
191	125	80	/	/	/	200	500
232	125	125	/	/	/	200	500
300	160	160	/	/	/	200	1000
382	250	160	/	/	/	200	1000
464	250	250	/	/	/	200	1000
375	160	160	80	/	/	200	1500
416	160	160	125	/	/	200	1500
457	250	160	80	/	/	200	1500
498	250	160	125	/	/	300	1500
539	250	250	80	/	/	300	1500
580	250	250	125	/	/	300	1500
600	160	160	160	160	/	300	2000
682	250	160	160	160	/	300	2000
764	250	250	160	160	/	300	2000
846	250	250	250	160	/	300	2000
928	250	250	250	250	/	300	2000
1003	250	250	250	250	80	300	2500
1044	250	250	250	250	125	300	2500
1078	250	250	250	250	160	300	3000
1160	250	250	250	250	250	300	3000

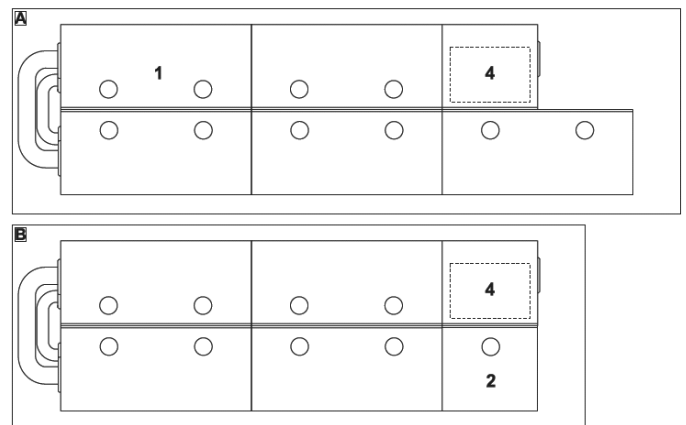


fig. 17 - Examples of opposed configurations

1 Model 160 - 250

2 Model 80 - 125

4 Safety devices and separator module

Table 3 Opposed configurations

Table 2 Configurations in line

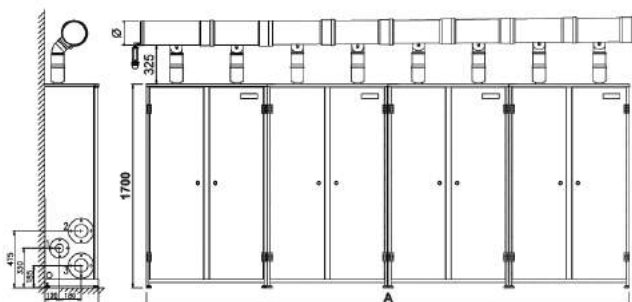


fig. 15 - Configuration - in line (example with 4 modules)

Opposed configurations

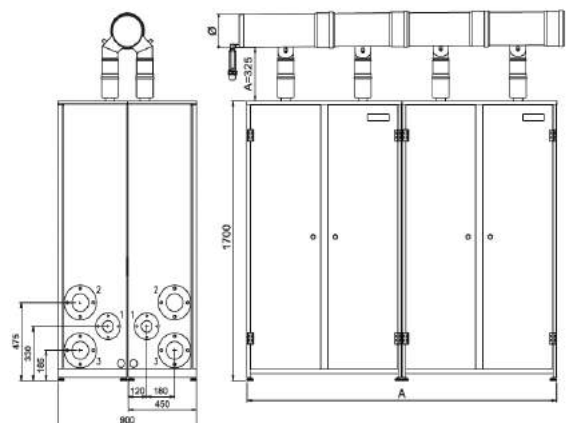


fig. 16 - Opposed configurations



3.2 Place of installation

The generator can be installed directly outside or in a suitable room with ventilation openings to the outside as prescribed by the current regulations. If there are several burners or extraction units that can work together in the same room, the ventilation openings must be sized for simultaneous operation of all the units. The place of installation must be free of flammable materials, corrosive gases, volatile substances or dusts. For positioning, leave enough space around the modules for normal maintenance operations. Make sure the front door opens without hindrance.

B The air necessary for combustion enters through special openings in the bottom and top part of the unit.

Make sure these air passages are not obstructed in any way.

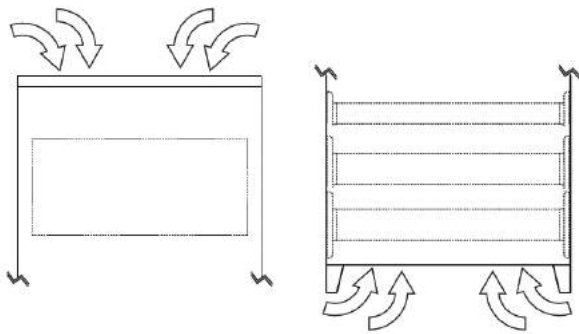


fig. 18 - Air Inlet

3.3 Gas and water connections

Make the relevant connections according to the instructions given below. Make the boiler connections in such a way that its internal manifold pipes are free of stress for proper operation and long life of the generator. The plumbing system must be sized correctly and complete with all the accessories that guarantees correct operation conditions.

In particular, provide for all the protection and safety devices prescribed by current regulations for the complete modular generator. They must be installed on the hot water circuit delivery piping, immediately downstream of the last module, within a distance of 0.5m, with no shut-devices in between. A "Safety Device and Circuit Breaker module" equipped with internal hydraulic circuit breaker and safety units with ISPESL certification is available by request. Refer to the price-list or contact our sales network.

The unit is not supplied with an expansion tank; its connection must therefore be made by the Installer.

A filter must also be installed on the system return piping to prevent impurities or sludge from the system clogging and damaging the heat generators.

The filter **must** be installed when installing or replacing boiler in existing systems. The manufacturer declines any liability for damage caused to the unit by failure to install or inadequate installation of an appropriate line filter.

Water system characteristics

In the presence of water harder than 25° Fr, it is advised to use a suitable water treatment to avoid possible scaling within the boiler, or possible corrosion caused by aggressive water. Due to its low thermal conductivity, scaling of just a few mm thick causes significant overheating of the generator tube walls, with consequent serious problems.

Water treatment is indispensable in the case of very large systems (containing large amounts of water) or with the frequent introduction of replenishing water to the system. If partial or total emptying of the system becomes necessary in these cases, it is advisable to refill with correctly treated water.

Gas connection

The gas supply must be connected to the corresponding union with a rigid metal pipe.

The gas meter must be of a size adequate for the simultaneous use of all units connected to it.

Carry out the boiler gas connection in accordance with all current regulations. The diameter of the gas pipe leaving the generator does not determine the diameter of the pipe between the unit and the supply line, it must be sized according to its length and pressure loss.

Make sure to install a gas isolation shut off valve externally to the boiler modules, enabling the gas to be turned off even without opening the modules doors equipped with key lock closing.

Connection instructions

Futura Power hot water boiler is equipped inside the casing module with 3 manifolds (system flow delivery, system return flow, gas lines) and a condensate drain pipe to facilitate cascade connections and connections of a single module to the heating system. The manifolds are sized for a connection in series of up to 1000 kW.

The boiler is supplied with a set of seals (2 for water manifolds, 1 for the gas manifold) with respective bolts and nuts, (found inside the cabinet) to be used for connection to a subsequent module (connection in cascade). The **optional kit code 042027X0**, containing Din 6 flanges, 3 blind flanges and 3 drilled flanges with respective seals and screws, is available on request for connection to the system.

To connect a single module

- Connections can easily be made from both sides of the boiler. After establishing which side of the boiler to make the water and gas connections, connect the flanges using the joining seals supplied. When connecting to the heating system pipes make sure that the special seals contained in the kit have been installed correctly to avoid leaks.
- Connect a Ø40 pipe to the condensate drain pipe for removing the condensate produced during operation (see Fig 48).
- Fit the blind flanges contained in the kit on the opposite side of the module, placing the special seals in between the flanges.



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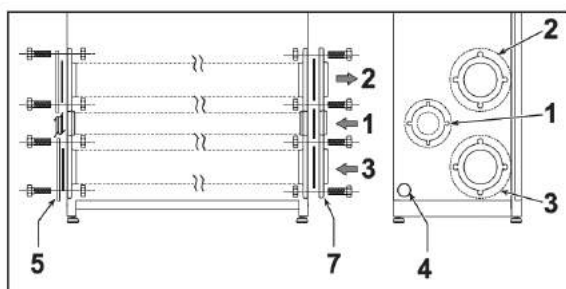


fig. 19

- 1 Gas inlet
- 2 System delivery
- 3 System return
- 4 Condensate drain
- 5 Blind flanges - kit 042027X0 (optional)
- 7 Blind flanges - kit 042027X0 (optional)

To connect several modules in line

- Connect the first module to the system and gas pipes, as described above, but without fitting the blank flanges on the opposite side of the module to that of the connection.
- Connect the second module on this side, making sure to align the connection flanges and the condensate drain pipe. Place the seals contained in the kit between the flanges of the two modules.
- Fit the bolts supplied with the kit into the flanges from the inside of the first module, allowing them to protrude through the flange in the second module. Partially tighten the nuts on the bolts from inside the second module.
- Before tightening the nuts, make sure all the seals are correctly positioned and the condensate drain pipes of the two modules (see g. 49).
- Tighten the nuts and repeat the connection operations for the following modules.

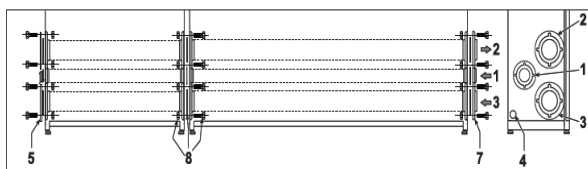


fig. 20

- 1 Gas inlet
- 2 System delivery
- 3 System return
- 4 Condensate drain
- 5 Blind flanges - kit 042027X0 (optional)
- 7 Blind flanges - kit 042027X0 (optional)
- 8 Seals and screws (standard)

To connect several opposed modules

Optional kit code 042026X0 is available for connecting the water and gas manifolds in series. The kit contains 3 flanged "U" pipes.

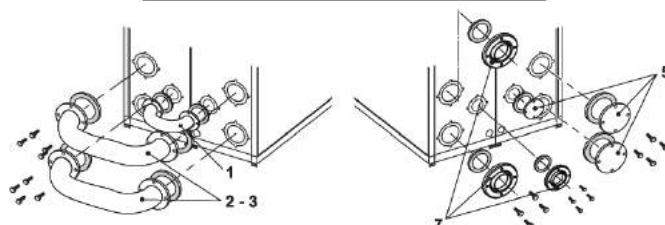
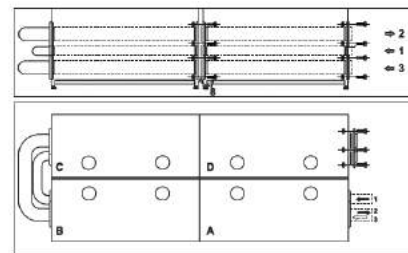


fig. 21 - Kit for connection of opposed modules

- A 1st Module
- B 2nd Module
- C 3rd Module
- D 4th Module
- 1 Gas inlet
- 2 System delivery
- 3 System return
- 5 Blind flanges
- 7 Drilled flanges
- 8 Seals and screws (standard)

- Arrange the modules according to the layout of Fig. 21.
- Connect the module to the system and gas pipes using the flanges with pipe section and respective seals contained in the **kit 042027X0**.
- Position the second module, making sure to align the connection flanges and the condensate drain pipe. Fit the seals (supplied) between the flanges of the two modules.
- Fit the bolts (supplied) on the flanges from inside the first module, so they protrude through the flanges in the second module. Partially tighten the nuts on the bolts from inside the second module.
- Before tightening the nuts, make sure all the seals are correctly positioned and the condensate drain pipes of the two modules (see Fig 49).
- Tighten the nuts and repeat the connection operations for the "U" pipes and next modules. Fit the blind flanges contained in the **kit 042027X0** on the last module.

Hydraulic Safety device and separator module (optional)

The Hydraulic Safety Device and Separator Module for series modular generators is an ISPEL certified module containing a hydraulic separator and safety, protection and control devices required by "R" section R3A and R3B, intended for use with series modular generators.

Every **ISPEL** hydraulic safety device module comprises a cabinet of the same size and appearance as the modular hot water generators FUTURIA power, containing a hydraulic separator with air valve and thermal insulation, the respective system delivery and return manifolds, a gas manifold, and a discharge manifold for the safety valve. The safety devices required by "R" section R3A and R3B are fitted on the hydraulic manifolds and hydraulic separator body. Provision is also made for the probe pocket for a possible gas shutoff valve to be installed in the system, on the outside of the bank of modules.

The hydraulic separator contained in the module allows the hydraulic circuit of the modules (primary circuit) to

operate independently of the hydraulic circuit of the respective heating system (secondary circuit).

The separator is sized for correct operation up to 1000 kW, and the main advantages offered are:

- An external circulating pump for the (primary circuit) is not necessary. In fact, circulation in the primary circuit is ensured by the small integral circulating pumps contained inside the Futuria power hot water generators.
- When the secondary pump is deactivated, the circulation in the system circuit also stops; the entire flow delivered by the circulating pumps contained inside the Futuria hot water generators is bypassed through the hydraulic separator.
- The flow rate in the primary circuit can remain constant, whereas the secondary circuit can function with a variable or intermittent flow rate.
- There are no anomalous operating conditions in which the system pumps interact with the circulating pumps inside the hot water generators, thus creating unwanted head and flow-rate variations in the circuits.
- Sizing of the system circulating pump can be carried out according to the needs of just the secondary circuit and not the boilers.

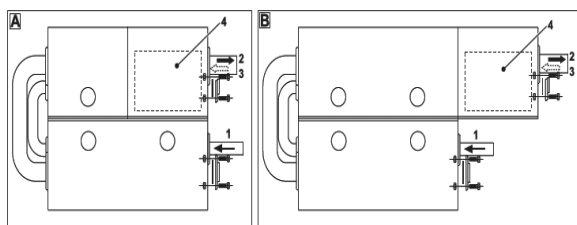


fig. 22 - Opposed configurations

- A** 1st Module
B 2nd Module
1 Gas inlet
2 System delivery
3 System return
4 Hydraulic separator

The hydraulic safety devices separator module must be installed directly next to the last module making up the modular generator. The particular symmetrical shape of the module allows it to be installed on the right side and left side of the generator bank. Some possible connection examples are given below.

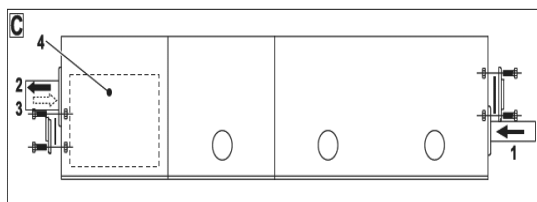


fig. 23 - Configuration in line

- C** 3rd Module containing the hydraulic separator
1 Gas inlet
2 System delivery
3 System return
4 Hydraulic separator

Plumbing circuit examples

Key of examples

I	ISPESL safety devices
D	Hydraulic separator
42	DHW temperature sensor (not supplied)
72	Room thermostat (not supplied)
72b	Room thermostat (not supplied)
95	3-way valve - with spring return: at rest on DHW side (not supplied)
130	Hot water tank circulating pump (not supplied)
138	External probe (not supplied)
139	Remote control (not supplied)
298	Cascade temperature sensor (not supplied)
306	Heating system circulating pump (not supplied)
307	Heating system second circulating pump (not supplied)
SM	Delivery probe (supplied with kit FZ4)
TS	Safety thermostat (not supplied)
PZ	Zone pump (not supplied)
FZ4	Zone regulator

Parameters

Each system requires a different parameterisation. Follow the procedure for accessing the two menus, given below; for the parameters to be modified, refer to the tables given alongside the plumbing diagrams.

"Service Menu"

Press the Reset button for 10 seconds to access the card service menu.

Press the following heating buttons to select:

tS	Transparent Parameters Menu
In	Information menu.
Hi	History Menu.
rE	History Menu Reset.

Select "tS" and press the RESET button.

The card has 29 transparent parameters also modifiable from Remote Control (Service Menu).

Press the Heating buttons to scroll the list of parameters in increasing or decreasing order.

Press the DHW buttons to modify the value of a parameter: the change will be automatically saved.

Press the **Reset** button to return to the Service Menu.

Press the **Reset** button for **10** seconds to exit to the card Service Menu.

"System Type Menu"

Press the Summer/Winter button for **10** seconds to access the card System Type Menu.

The card has 21 transparent parameters.

Press the Heating buttons to scroll through the list of parameters in increasing or decreasing order.

Press the DHW buttons to modify the value of a parameter: the change will be automatically saved.

Press the Summer/Winter button for **10** seconds to exit the card System Type Menu.

One direct heating circuit

Check/Change parameter P.02 of the "Transparent Parameters Menu" to 4.

Change parameter P.02 of the "System Type Menu" to 1

Change parameter P.09 of the "System Type Menu" to 1

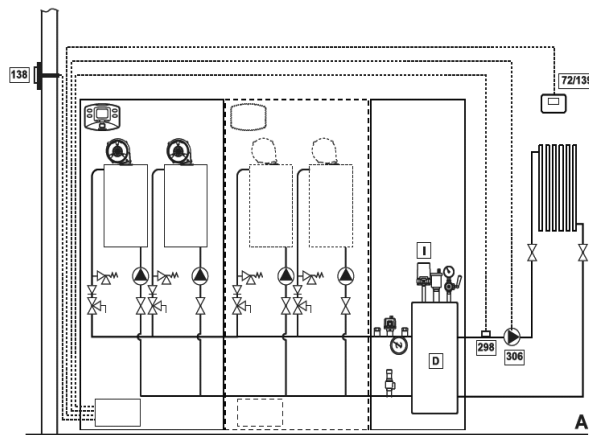


fig. 24

One direct heating circuit and one DHW circuit with pump

Check/Change parameter P02 of the "Transparent Parameters Menu" to 5.

Change parameter P.02 of the "System Type Menu" to 1.

Change parameter P.09 of the "System Type Menu" to 1.

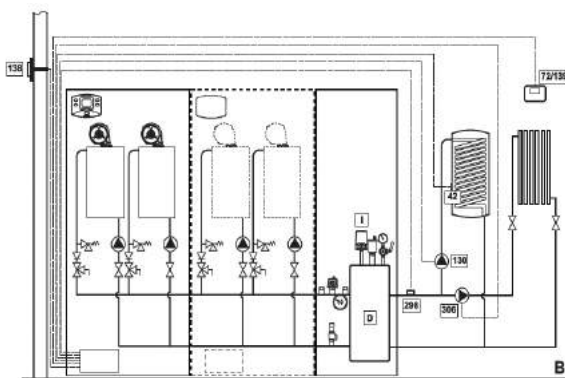


fig. 25

One direct heating circuit and one DHW circuit with diverter valve

Check/Change parameter P02 of the "Transparent Parameters Menu" to 6

Change parameter P.02 of the "System Type Menu" to 1.

Change parameter P.09 of the "System Type Menu" to 1.

Change parameter P.11 of the "System Type Menu" to 1.

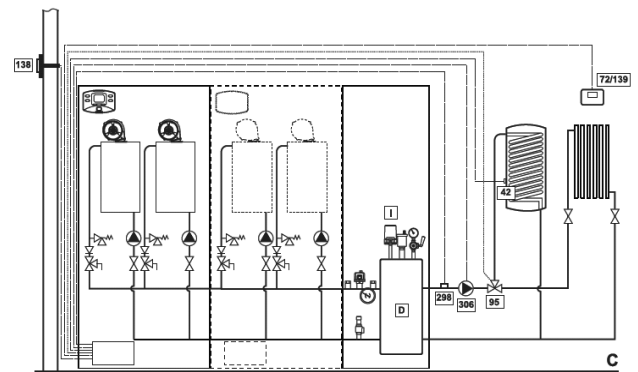


fig. 26

Two direct heating circuits

Check/Change parameter P02 of the "Transparent Parameters Menu" to 4.

Change parameter P.01 of the "System Type Menu" to 4.

Change parameter P.02 of the "System Type Menu" to 1.

Change parameter P.09 of the "System Type Menu" to 1.

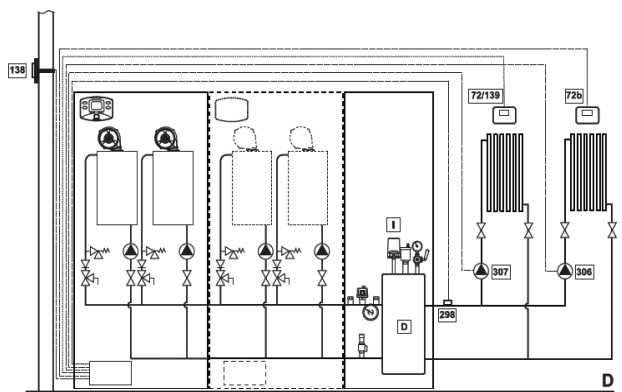


fig. 27

Two mixed heating circuits and one direct heating circuit

Check/Change parameter P02 of the "Transparent Parameters Menu" to 4.

Change parameter P.02 of the "System Type Menu" to 1.

Change parameter P.09 of the "System Type Menu" to 1.

For the electrical connection and the zone system settings, refer to the "FZ4 zone regulator" handbook.

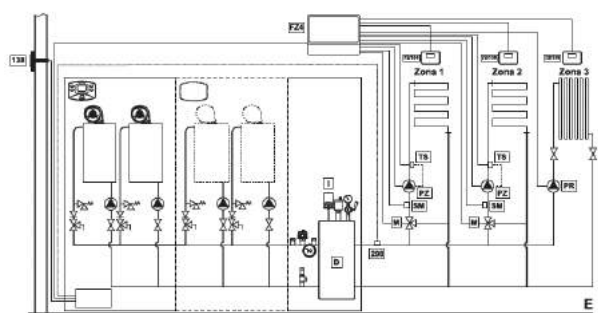


fig. 28



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Two mixed heating circuits, one direct heating circuit and one DHW circuit with pump.

Check/Change parameter P02 of the "Transparent Parameters Menu" to 5.

Change parameter P.02 of the "System Type Menu" to 1.

Change parameter P.09 of the "System Type Menu" to 1.

For the electrical connection and the zone system settings, refer to the "FZ4 zone regulator" Handbook.

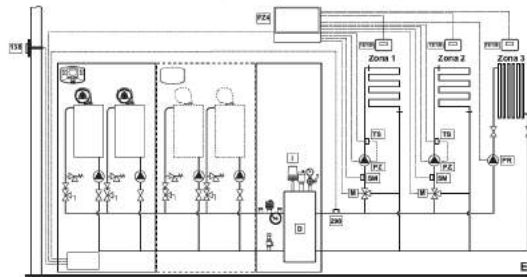


Fig. 27

3.4 Electrical connections

Connection to the electrical supply.

B The unit's electrical safety is only guaranteed when correctly connected to an efficient earthing system executed according to current safety standards. Have the efficiency and suitability of the earthing system checked by professionally trained and qualified personnel.

The manufacturer is not responsible for any damage caused by failure to earth the system. Also make sure that the electrical system is adequate for the maximum power absorbed by the unit, as specified on the boiler data plate. The boiler is prewired and provided with a 240 Volt cable and plug for connection to the electricity line. The connections to the power supply must be made with a permanent connection and equipped with a bipolar switch whose contacts have a minimum opening of at least 3mm, interposing fuses of max. 3 amp between the boiler and the line. It is important to respect the polarities (LINE: brown wire / NEUTRAL: blue wire / EARTH: yellow-green wire) when making connections to the electrical line. During installation or when changing the power cable, the earth wire must be left 2 cm longer than the others.

The end user must never change the unit's power cable. If the cable gets damaged, switch the unit and have it changed solely by professionally qualified personnel. If changing the electric power cable, use solely "HAR H05 VV-F" 3x0.75mm² cable with a maximum outside diameter of 8 mm.

Room thermostat (optional)

CAUTION: The room thermostat must have clean contacts. CONNECTING 230 V. TO THE TERMINALS OF THE ROOM THERMOSTAT WILL IRREPARABLY DAMAGE THE ELECTRONIC CARD.

When connecting a remote timer control or a timer switch, do not take the power supply for these devices from their cut-out contacts. Their power supply must be taken with a direct connection from the mains or with batteries, depending on the kind of device.

External probe (optional)

Connect the probe to the respective terminals. The maximum permissible length of the electric cable connecting the boiler - external probe is 50 m. A common 2-wire cable can be used. The external probe should

preferably be installed on the South, South-east wall in Australia, or on the wall facing most of the main living-room. The probe must never be exposed to the early morning sun, and in general (as far as possible) it should not be exposed to direct sunlight or weather, protect it if necessary. In any case, the probe must not be installed near windows, doors, vents, flues or heat sources that could affect the reading.

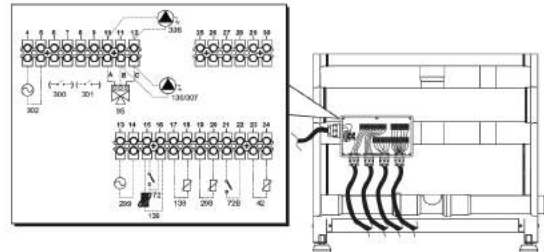


Fig. 30 - Electrical terminal block

Accessing the electrical terminal block

The electrical terminal block is located inside a sealed box at the bottom left hand side of the cabinet.

Make the electrical connections as shown in the wiring diagram on sec. 64 and run the cables through the special electrical cable glands supplied.

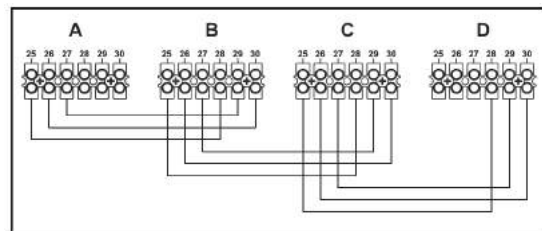


Fig. 31 - Connection in cascade

- 42 DHW temperature sensor (not supplied)
- 72 Room thermostat (not supplied)
- 72b Room thermostat (not supplied)
- 95 Diverter valve (not supplied)

A = Heating phase
B = DHW phase
C = Neutral

Note: For valves with 2 wires and spring return, use the connections B and C

- 130 DHW circulating pump (not supplied)
- 138 External probe (not supplied)
- 139 Remote timer control (not supplied)
- 298 Cascade temperature sensor (not supplied)
- 299 Input 0-10 Vdc
- 300 Burner lit contact (voltage-free contact)
- 301 Fault contact (voltage-free contact)
- 302 Remote reset input (230 Volt)
- 306 Heating system circulating pump (not supplied)
- 307 Heating system second circulating pump (not supplied)

For connection in cascade (MAX. 5 MODULES)

1. Connect the modules as shown in Fig 32 (example with 4 modules)
- 2.

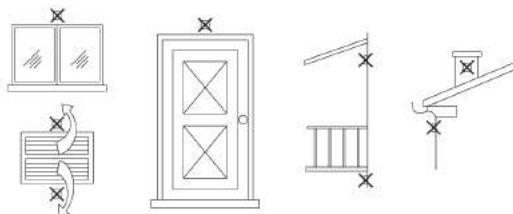


Fig. 29 - External probe positioning not recommended

- A 1st Module
- B 2nd Module
- C 3rd Module
- D 4th Module

2. Carry out all the electrical connections (terminals 4 to 24) on module no. 1
3. On the remaining modules only connect the power supply and possible contacts for: burner lit (300), fault contact (301) and remote reset input (302).
4. Switch on the power to the entire cascade
5. After the "FH" procedure, check correct operation of the cascade:

- Module 1: arrow symbol at top left of the display
- Module 2: arrow symbol at bottom right of the display
- Module 3: arrow symbol at bottom right of the display
- Module 4: arrow symbol at top right of the display

If this does not occur, disconnect the power and check the wiring in Fig. 32.

Settings

All adjustments must be made on all the modules.

Possible faults

If the electrical connection to a module is disconnected for any reason, module 1 will activate fault **F70**.

If the electrical connection of a module is disconnected for any reason, the next module will activate fault **F71**.

3.5 Flue connection

Important

The unit is a non-room sealed appliance with combustion air drawn from the installation room and flue fumes exhausted by means of a power fan (operating with flue under pressure) and must be connected to one of the discharge systems indicated below. Before proceeding with installation, check and carefully comply with the local regulations and provisions. Also comply with the provisions concerning the positioning of wall and/or roof terminals and the minimum distances from windows, walls, ventilation openings, etc.

Manifold, ducts and flues must be suitably sized, designed and made in compliance with the current standards. They must be made of suitable materials, i.e. resistant to heat and corrosion, smooth on the inside and hermetic. In particular, joints must be condensate proof.

Also provide for suitable condensate drainage points, connected through a trap to prevent the condensate produced in the flues from running into the generators.

B The unit is equipped with one (Futura power models **80 - 125**) or two (models **160 - 250**) separate Ø80 flue connections for the two burner-exchanger units.

The combustion circuits of the two units are completely independent. When joining the two flue outlets to a single flue or manifold (in case of a single module or connection in cascade) it is necessary to install a **fume anti-backflow valve** on each outlet to prevent operation anomalies or the creation of hazardous conditions. Make sure to use the optional Lamborghini kits, provided with special anti-backflow valves.

Please note:

Before carrying out the connection, make sure to fill the condensate trap with approx. 0.5 litres of water through the flue connections.

Connection with separate pipes

Separate Ø80 ducts can be connected directly to the unit. Insert the seal 1KWMA84A on the Ø80 pipes leaving the unit and make it adhere to the upper wall of the cabinet.

Before proceeding with installation, make sure the maximum permissible length has not been exceeded, by means of a simple calculation:

1. Establish the layout of the system of split Flues, including accessories and outlet terminals for each of the two burner/exchanger bodies.
2. Consult the table 5 and identify the losses in m_{eq} (equivalent metres) of every component according to the installation position.
3. Check that the sum total of losses is less than or equal to the maximum permissible length in table 4.

Table. 4 - Max. length separate ducts

	Separate ducts
	For each single Exchanger/Burner Body
Max. permissible length	20 m _{eq}

Table. 5 - Accessories

				Losses in m _{eq}	
				Fume exhaust	
				Vertical	Horizontal
Ø 80	PIPE	1 m M/F	1KWMA83W	1.6	2.0
	BEND	45° M/F	1KWMA65W	1.8	
		90° M/F	1KWMA01W	2.0	
	PIPE SECTION	with test point	1KWMA70W	0.3	
	TERMINAL	fumes, wall with antiwind	1KWMA86A	5.0	
	FLUE	Split air/fumes 80/80	1KWMA84U	5.0	



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Direct connection of Ø80 terminals code 041013X0

Each single module can be connected directly to the terminal kits 041013X0 as shown in fig 33 connection in bank

Each flue kit comprises an Ø80 straight flue and flue terminal (ref. 3), a seal (ref.1) and a centre ring (not used in this model). For models Futuria **160 - 250** modules use 2 kits and for **80 - 125** modules use 1 kit.

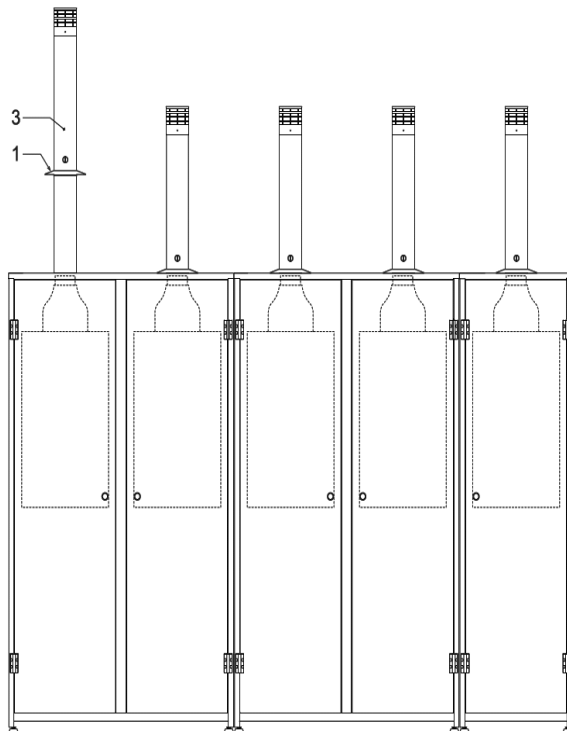


fig. 33

B Before installing the flues, fill the trap with approx. 0.5 litres of water through the flue connections.

B For outside installations make the seal 1 adhere perfectly to the top part of the cabinet, to prevent possible infiltration of rain and atmospheric agents.

Connection with manifolds

To connect one or more modules in bank to a single flue, it is advisable to use the special manifolds (option) given in the table. The choice of diameter must be made according to the total power of the bank of units, refer to information that provided in the tables. Use a starting kit for each bank containing manifold plug and trap) and a suitable number of manifolds (one for each 80 - 125 and two for each 160 - 250).

90° bends and manifold extensions are also available for the flue connection.

Bank heating capacity	Manifold diameter		Starting kit	Manifold kit L=500	Manifold extension M/F L=1000	90° bend manifold
Up to 500 kW	200 mm	in line	041026X0	C 041028X0	041019X0	041016X0
		opposed		E 041030X0		
Up to 1000 kW	300 mm	in line	041027X0	D 041029X0	041036X0	041035X0
		opposed		F 041031X0		

Installation examples with modules in line

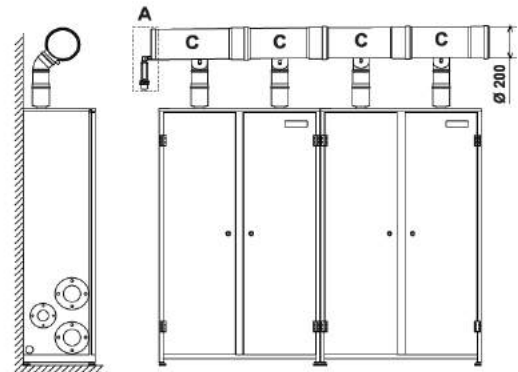


fig. 34

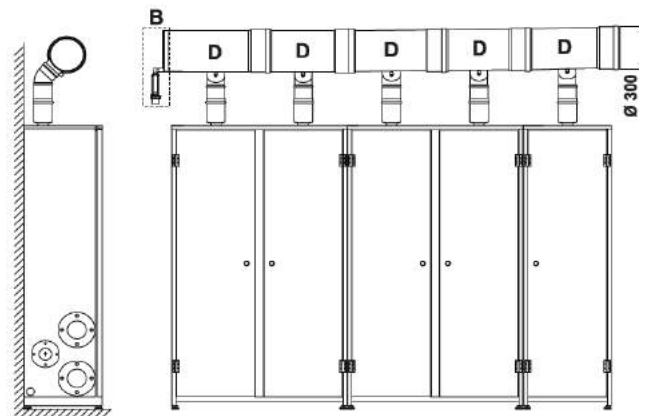


fig. 35

A - 041026X0 - Starting kit Ø200

B - 041027X0 - Starting kit Ø300

C - 041028X0 - Manifold kit Ø200 in line

D - 041029X0 - Manifold kit Ø300 in line



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Installation examples with opposed modules

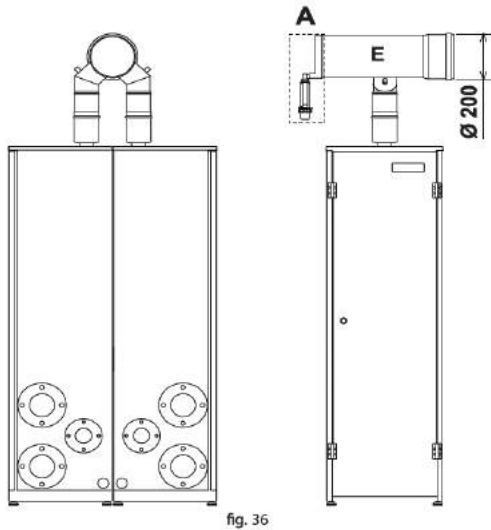


fig. 36

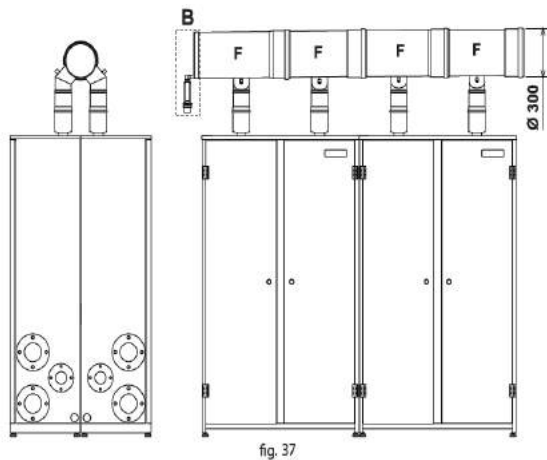


fig. 37

- A - 041026X0** - Starting kit Ø200
- B - 041027X0** - Starting kit Ø300
- E - 041030X0** - Manifold kit Ø200 opposed
- F - 041031X0** - Manifold kit Ø300 opposed

Fume manifold installation

Fix the fume manifold support brackets in the special holes arranged in the modules; see (Fig 38) for side by side modules and (Fig 39) for opposed modules.



fig. 38



fig. 39

Arrange the height and slope of the manifold by means of the special holes in the brackets (Fig 40 and Fig 41).

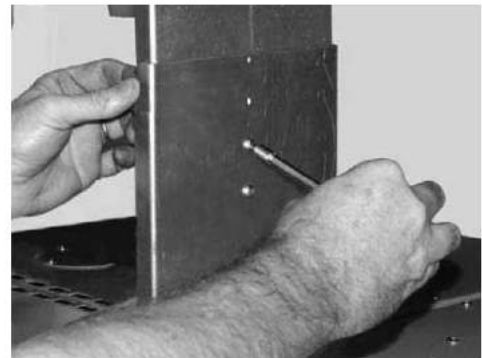


fig. 40

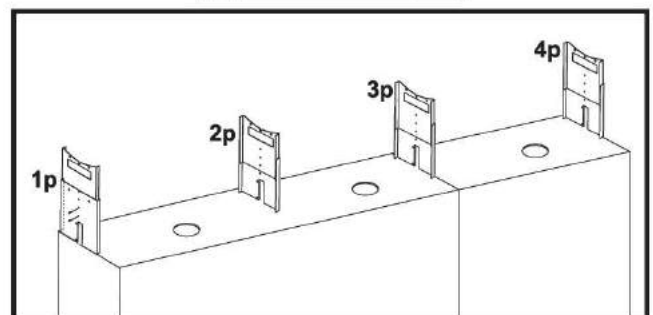
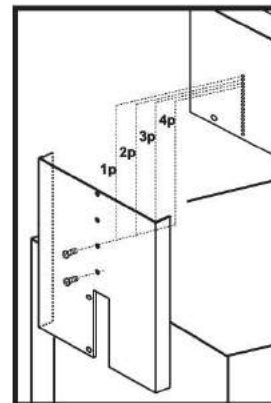


fig. 41



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Couple together the fume manifolds and the trap cap using an appropriate "o" ring grease; see Fig.42)



fig. 42

Position the manifolds on the previously fixed brackets (Fig. 43) and fix them using the special clamps Fig 44)



fig. 43



fig. 44

Fix the trap Fig 45)



fig. 45

Insert the fume dampers (Fig 46), loosening screw "D", and correctly fit them on the fume flue manifold. Then tighten screw "D" (Fig 47).



fig. 46



fig. 47

3.6 Condensate drain

B The boiler has an internal condensate drain trap connected to an internal condensate outlet manifold.

Condensate outlet connection using one Boiler



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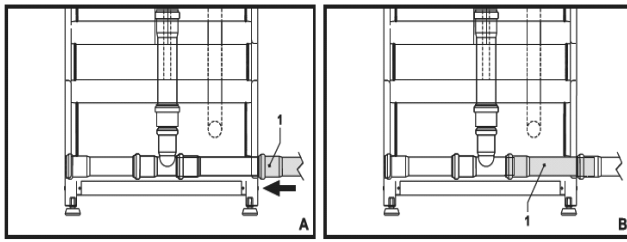


fig. 48 - Condensate drain connection with one generator

a Place the Ø40 pipe 1 (not supplied) on the side of the generator.

b Slide the pipe 2 towards the arrow side at least 2-3 cm in order to insert it in the pipe 1.

Condensate outlet connection using two or more generators

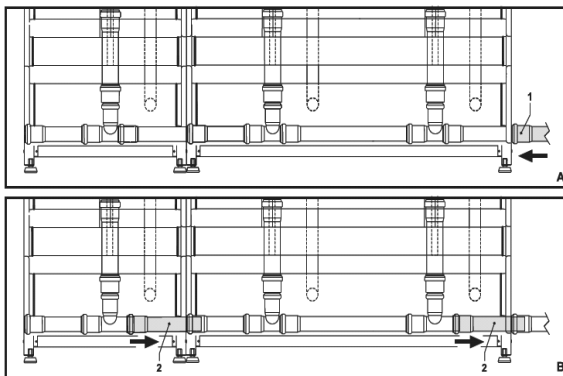


fig. 49 - Condensate drain connection with several generators

A Place the Ø40 pipe 1 (not supplied) on the side of the generator.

B Slide the pipe 2 (of each generator) towards the arrow side at least 2-3 cm in order to insert it in the pipe 1.

4. SERVICE AND MAINTENANCE

All adjustment, conversion, start up and maintenance operations described below must only be carried out by qualified fully trained personnel (meeting the professional technical requirements prescribed by current regulations) such as those of the Local After-Sales Technical Service.

Lamborghini declines any liability for damage and/or injury caused by unqualified and unauthorised persons tampering with the unit.

4.1 Adjustments

Gas conversion (Contact the supplier first)

The unit can operate on both natural gas, or on LPG and is factory-set for use with one of these two types of gas, this is clearly shown on the packing and on the data plate. Whenever a gas is different from that shown on the unit, a conversion kit will be required, proceed as follows:

1. Disconnect the power supply to the boiler.

2. Using the special key supplied, open the cabinet of the upper exchanger body.

3. Detach the electrical connections from the gas valve controller.

4. Loosen the **gas valve** (e) Fixing ring Fig" 50"A Fig 51.

5. Undo the two screws "B" and remove the fan assembly as indicated in Fig 50 for the model **80 - 160** and in for Fig 51 the model **125 - 250**.

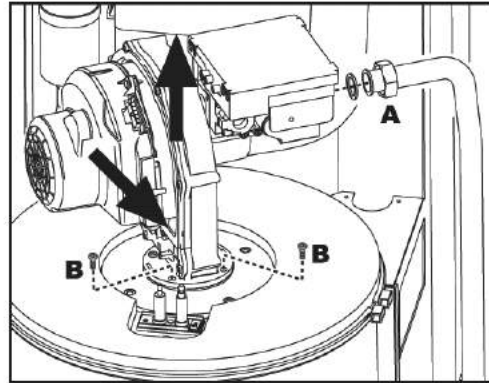


fig. 50 - model FUTURIA power 80 - 160

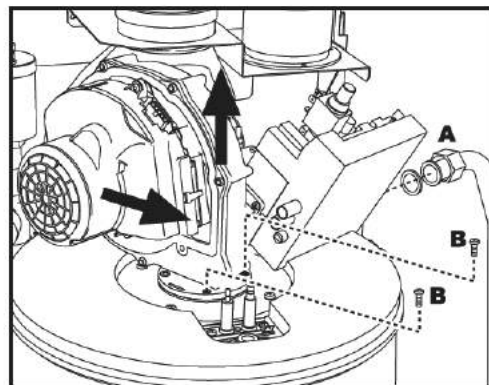


fig. 51 - model FUTURIA power 125 - 250

6. Undo the screws "C" and remove the fan "D" (Fig 52) model (125- 250) only.

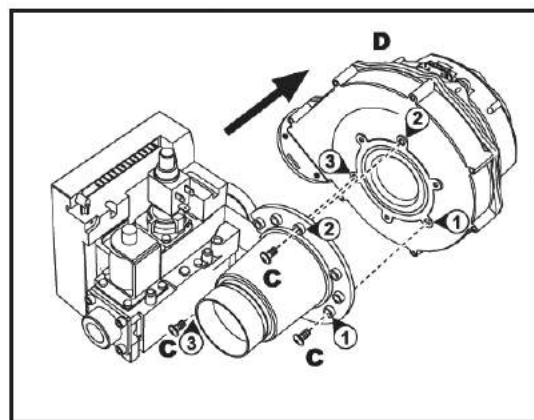


fig. 52 - model FUTURIA power 125 - 250

7. Undo the g screws "E" Fig 53 model **80 - 160** and Fig 54 FUTURIA power Model (125 - 250) and remove the gas valve.



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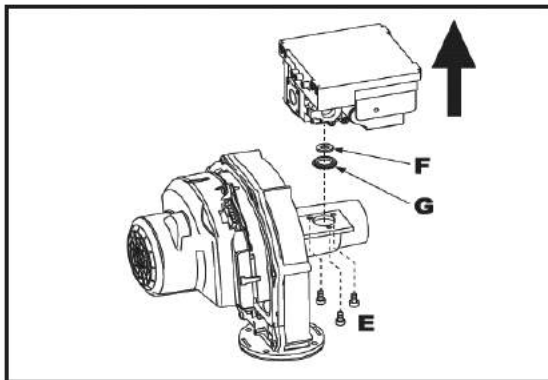


fig. 53 - model FUTURIA power 80 - 160

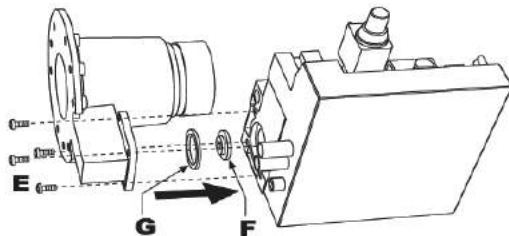


fig. 54 - model FUTURIA power 125 - 250

8. Replace the gas nozzle "F" (see Fig 53 for the model 80 - 160 and Fig 54 the model 125 - 250) with the one contained in the conversion kit, positioning it inside the seal "G". Refit the parts and check their gas leaks.

9. Modify the parameter for the type of gas:

- put the boiler in standby mode
- press the **DHW buttons** (details 1 and 2 - Fig. 1) at the same time for **10 seconds**: the display shows " **P01** " flashing.
- Press the **DHW buttons** (details Fig 11 & Fig 2) to **set parameter 00** (for use with **natural gas**) or **01** (for use with **LPG**).
- Press the **DHW buttons** (details 1 and 2 - Fig. 1) together for **10 seconds**. The boiler will return to standby mode.

10. Apply the label, contained in the conversion kit, near the data plate.

11. Using a combustion analyser connected to the boiler flue fume outlet, make sure the Co2 content in the fumes, with the boiler operating at max and min output, complies with that given in the technical data table for the corresponding type of gas.

TEST mode activation

Press the heating buttons **+/-** (details 3 and 4 - Fig 1) together for 5 seconds to activate the **TEST** mode.

The boiler lights at the maximum heating power set as described in the following section.

The heating symbol (detail 13 - Fig 1) and DHW symbol (detail 9 - Fig 1) flash on the display; the heating power will be displayed alongside.

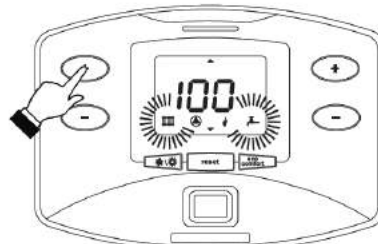


fig. 55 - TEST mode (heating power = 100%)

To deactivate the **TEST** mode, repeat the activation sequence.

The **TEST** mode will automatically disable after 15 minutes.

Only for models FUTURIA power 160 - 250

In **TEST** mode, press the button (detail 7 - Fig 1) to obtain the following operation:

- Top boiler shell on - bottom boiler shell off.
- Top boiler shell - bottom boiler shell on.
- Top boiler shell on- bottom boiler shell on.

Heating power adjustment

To adjust the heating power, switch the boiler to **TEST** mode (see sec. 4.1)

Press the **heating buttons** (details 3 and 4 - Fig 1) to increase or decrease the power (min. = **00** - max. = **100**).

Press the **reset button** (detail 8 - Fig. 1) within 5 seconds; the max power will remain as that just set. Exit the **TEST** mode (see sec. 4.1).

4.2 Start-up

B Checks to be made at first lighting, and after all maintenance operations that involved disconnection from the systems or an operation on safety devices or parts of the boiler: **Before lighting the boiler.**

- Open all valves between the boiler and the systems.
- Check the tightness of the gas system, proceeding with caution and using a soapy water solution to detect any leaks in connections.
- Check correct pre-filling pressure of the expansion tank (ref. sec. 5.4).
- Fill the system with water and make sure all air trapped inside the boiler and the system has been vented, by opening the air vent valve in the boiler. Make sure the internal circulating pump impeller is free and any automatic air vents in the system are open.
- Fill the condensate trap with water and check the connection of the condensate elimination system.
- Make sure there are no water leaks in the system, DHW circuits, connections to the boiler.
- Check connections of the electrical system are correct and efficiency of the earthing system.
- Make sure the gas pressure value for heating is that required. (Sufficient gas supply pressure to allow the boiler to operate correctly).



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4.4 Troubleshooting

- Make sure there are no flammable liquids or materials stored in the immediate vicinity of the boiler.

Checks during operation

- Turn the unit on as described in sec. 2.3
 - Make sure the gas supply and water systems are tight.
 - Check the efficiency of the flue and air-fume ducts while the boiler is working.
 - Check the correct tightness and functionality of the condensate elimination system and trap.
 - Make sure the water is circulating properly between the boiler and the systems.
 - Make sure the gas valve modulates correctly in both the heating and domestic hot water production phases.
 - Check for correct boiler lighting by doing several tests, turning it On & Off with the room thermostat or remote control.
 - Using a combustion analyser connected to the boiler fume flue test outlet, check that the Co2 content in the combustion fumes, with the boiler operating at max and min output, corresponds to that given in the technical data table for the corresponding gas type.
 - Make sure the gas consumption indicated on the gas meter matches that given in the technical data table on sec. 5.4.
 - Check the correct programming of the parameters and carry out any necessary customization (compensation curve, power, temperatures, etc).
- #### 4.3 Maintenance
- ##### Periodical check
- To keep the unit working and performing correctly over time, it is necessary to have qualified trained personnel make an annual check that includes the following tests:
- The control and safety devices (gas valve, flow meter, thermostats, etc.) are functioning correctly.
 - The fume extraction system is operating at max-efficiently.
 - The airtight chamber is sealed correctly.
 - The air-fume end piece and ducts must be free of obstructions and leaks.
 - The condensate evacuation system must be efficient with no leakage or obstructions.
 - The burner and exchanger must be clean and free of scale. When cleaning, do not use chemical products or wire brushes. (Contact the supplier).
 - The ignition electrode must be free of scale and properly positioned.
 - Check the gas and water systems for leaks.
 - The water pressure in the cold water system must be approximately 1 to 1.5 bar, otherwise reset to that value.
 - Check the operation of the internal circulation pump.
 - The expansion tank must be set to the correct pressure.
 - The gas flow and pressure must correspond to that given in the respective tables.

A The boiler casing, panel and aesthetic parts can be cleaned with a soft damp cloth, possibly soaked in soapy water. Do not use any abrasive detergents and solvents.

Diagnostics

The boiler is equipped with an advanced self-diagnosis system. In case of a boiler fault, the display will flash together with the fault symbol (detail 20 - Fig 1) indicating the fault code.

There are faults that cause permanent shutdown (marked with the letter "A"): to restore operation just press the **RESET** button (detail 8 - 1) for 1 second or RESET on the optional remote timer control if installed, if the boiler fails to start, it is necessary firstly eliminate the fault.

Other faults (marked with the letter "F") cause temporary shutdowns that are automatically reset as soon as the value returns within the boiler's normal working range, except for **fault F37** which is reset by turning the unit off and on using button **14** see Fig 1.

Table of faults

Table. 6 - List of faults

Fault code	Fault	Possible cause	Cure
A01	No burner ignition	No gas	Check the regular gas flow to the boiler and that the air has been eliminated from the pipes
		Detection/ignition electrode fault	Check the wiring of the electrode and that it is correctly positioned and free of any deposits
		Faulty gas valve	Check the gas valve and replace it if necessary
		Insufficient gas supply pressure	Check the gas supply pressure
		Trap blocked	Check the trap and clean it if necessary
A02	Flame present signal with burner off	Electrode fault	Check the ionisation electrode wiring
		Card fault	Check the card
		Heating sensor damaged	Check correct positioning and operation of the heating sensor
A03	Overtemperature protection activation	No water circulation in the system	Check the circulating pump
		Air in the system	Vent the system
		Fume extraction duct safety device activation	See fault F07
A04	Fume extraction duct safety device activation	Fault F07 generated 3 times in the last 24 hours	See fault F07
A05	Fan protection activated	Fault F15 generated for 1 hour (consecutive)	See fault F15
A06	No flame after ignition stage (6 times in 4 minutes)	Ionisation electrode fault	Check the position of the ionisation electrode and replace it if necessary
		Flame unstable	Check the burner
		Gas valve Offset fault	Check the Offset adjustment at minimum power
		air/fume ducts blocked	Remove the obstruction from the flue, fume extraction and air inlet ducts and terminals
		Trap blocked	Check the trap and clean it if necessary
F07	High fume temperature	Flue partially obstructed or insufficient	Check the efficiency of the flue, fume extraction ducts and outlet terminal
		Fume sensor position	Check correct positioning and operation of the fume sensor
F10	Delivery sensor 1 fault	Sensor damaged	Check the wiring or replace the sensor
		Wiring shorted	
		Wiring disconnected	
F11	Return sensor fault	Sensor damaged	Check the wiring or replace the sensor
		Wiring shorted	
		Wiring disconnected	
F12	DHW sensor fault	Sensor damaged	Check the wiring or replace the sensor
		Wiring shorted	
		Wiring disconnected	
F13	Fume sensor fault	Sensor damaged	Check the wiring or replace the sensor
		Wiring shorted	
		Wiring disconnected	
F14	Delivery sensor 2 fault	Sensor damaged	Check the wiring or replace the sensor
		Wiring shorted	
		Wiring disconnected	



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Fault code	Fault	Possible cause	Cure
F15	Fan fault	No 230V power supply	Check the 3-pin connector wiring
		Tachometric signal interrupted	Check the 5-pin connector wiring
		Fan damaged	Check the fan
F34	Supply voltage under 170V	Electric mains trouble	Check the electrical system
F35	Faulty mains frequency	Electric mains trouble	Check the electrical system
F37	Flowswitch or pressure switch contact open	Insufficient system pressure or circulation	Check the system water pressure or for air in the system
		Circulating pump not working	Check the circulating pump
		Wrong card parameter setting	Check and if necessary modify the card parameter
F38	Flowswitch contact blocked/closed	Flowswitch dirty or or blocked	Clean the flowswitch or replace it if necessary
F39	External probe fault	Probe damaged or wiring shorted	Check the wiring or replace the sensor
		Probe disconnected after activating the sliding temperature	Reconnect the external probe or disable the sliding temperature
A41	Sensor positioning	Delivery sensor disconnected from the pipe	Check correct positioning and operation of the heating sensor
A42	Heating sensor fault	Sensor damaged	Replace the sensor
F42	Heating sensor fault	Sensor damaged	Replace the sensor
F50	Cascade temperature sensor fault	Sensor damaged	Check the wiring or replace the sensor
		Wiring shorted	
		Wiring disconnected	
A61	Controller DBM12 fault	Controller DBM12 internal error	Check the earth connection and replace the controller if necessary.
A62	No communication between controller and gas valve	Controller not connected	Connect the controller to the gas valve
		Valve damaged	Replace the valve
A63 A64 A65 F66	Controller DBM12 fault	Controller DBM12 internal error	Check the earth connection and replace the controller if necessary.

5. TECHNICAL DATA AND CHARACTERISTICS

Key of cap. 5

- 7 Gas inlet
- 10 System delivery
- 11 System return
- 14 Safety valve
- 16 Fan
- 22 Burner
- 29 Fume outlet manifold
- 32 Heating circulating pump
- 36 Automatic air vent
- 38 Flow switch
- 42 DHW temperature sensor (not supplied)
- 44 Gas valve
- 72 Room thermostat (not supplied)
- 72b Second room thermostat (not supplied)
- 81 Ignition electrode
- 82 Detection electrode
- 95 Diverter valve (not supplied)
- 98 Switch
- 114 Water pressure switch
- 130 DHW circulating pump (not supplied)
- 138 External probe (not supplied)
- 139 Remote timer control (not supplied)
- 154 Condensate outlet pipe
- 179 Check valve
- 186 Return sensor
- 191 Fume temperature sensor
- 193 Trap

- 196 Condensate tray
- 215 Air inlet reducer
- 220 Ignition card
- 252 3-way drain and shut-o cock
- 253 cock
- 278 Double sensor (Safety + Heating)
- 298 Cascade temperature sensor (not supplied)
- 299 Input 0-10 Vdc
- 300 Burner lit contact (voltage-free contact)
- 301 Fault contact (voltage-free contact)
- 302 Remote reset input (230 Volt)
- 306 Heating system circulating pump (not supplied)
- 307 Heating system second circulating pump (not supplied)

A = Heating phase

B = DHW phase

C = Neutral

Note: For valves with 2 wires and spring return, use the connections B and C

5.1 Dimensions and connections

Model FUTURIA power 80 - 125

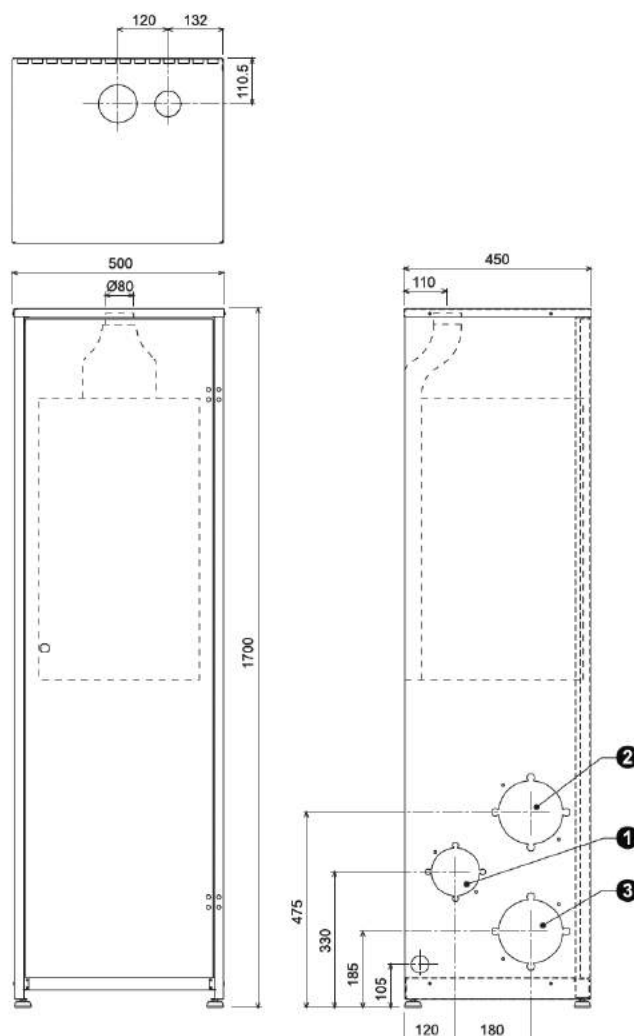


fig. 56 - Dimensions and connections model FUTURIA power 80 - 125

- 1 = Gas inlet
- 2 = Heating system delivery
- 3 = Heating system return



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Model FUTURIA power 160 - 250

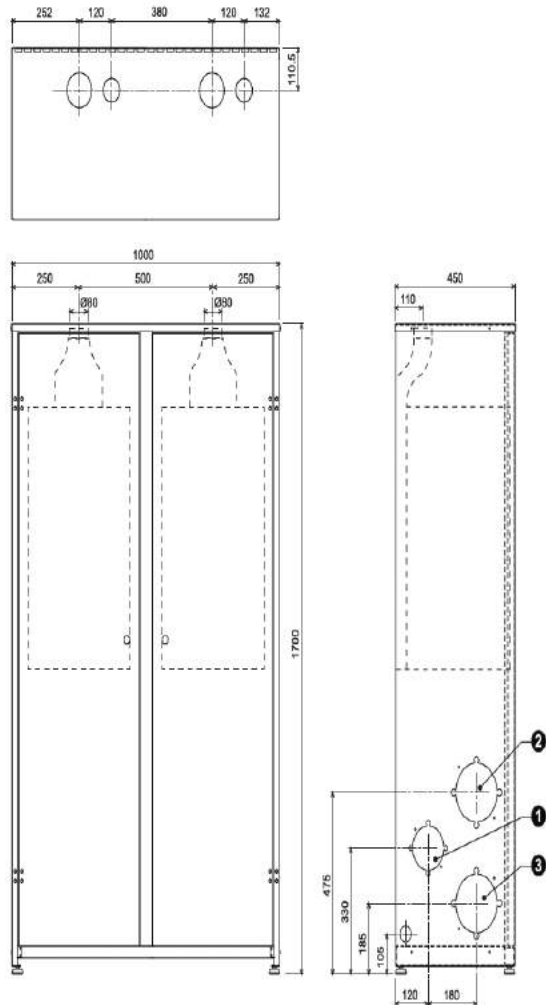


fig. 57 - Dimensions and connections model FUTURIA power 160 - 250

- 1 = Gas inlet
- 2 = Heating system delivery
- 3 = Heating system return

5.2 General view and main components Model 80 - 125

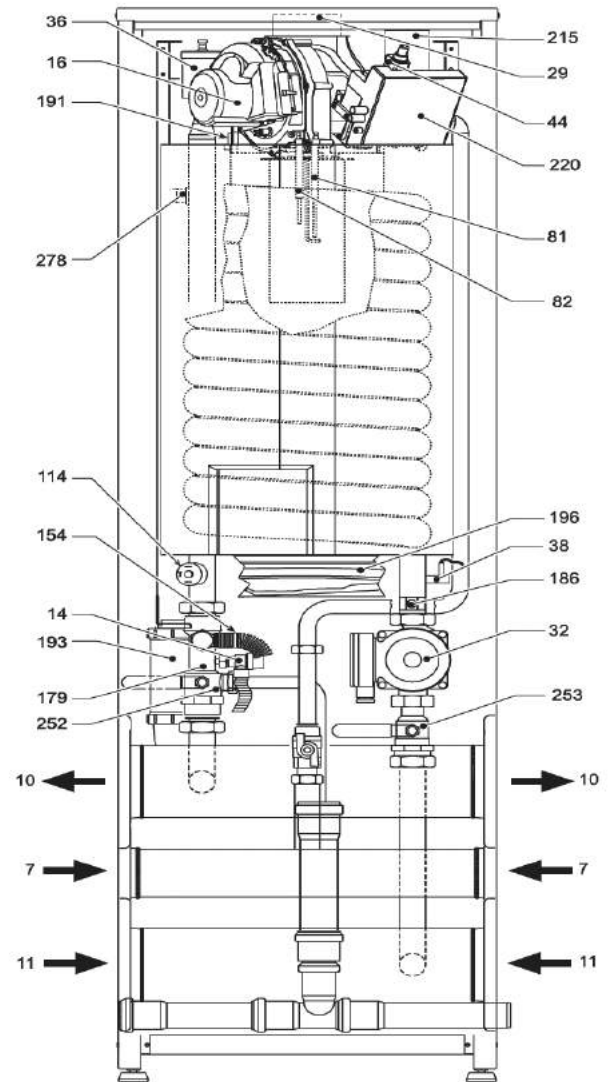


fig. 58 - General view model FUTURIA power 80 - 125



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FUTURIA power model 160 – 250

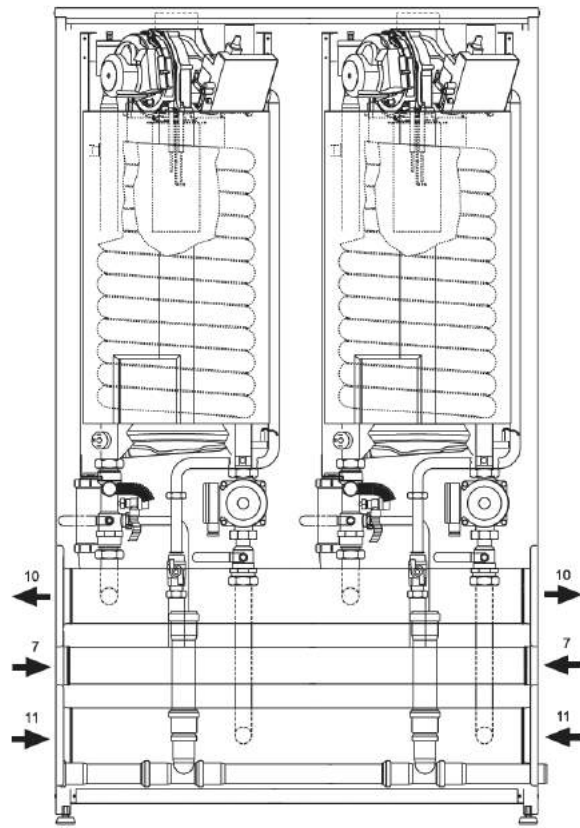


fig. 59 - General view model FUTURIA power 160 - 250

FUTURIA power model 160 – 250

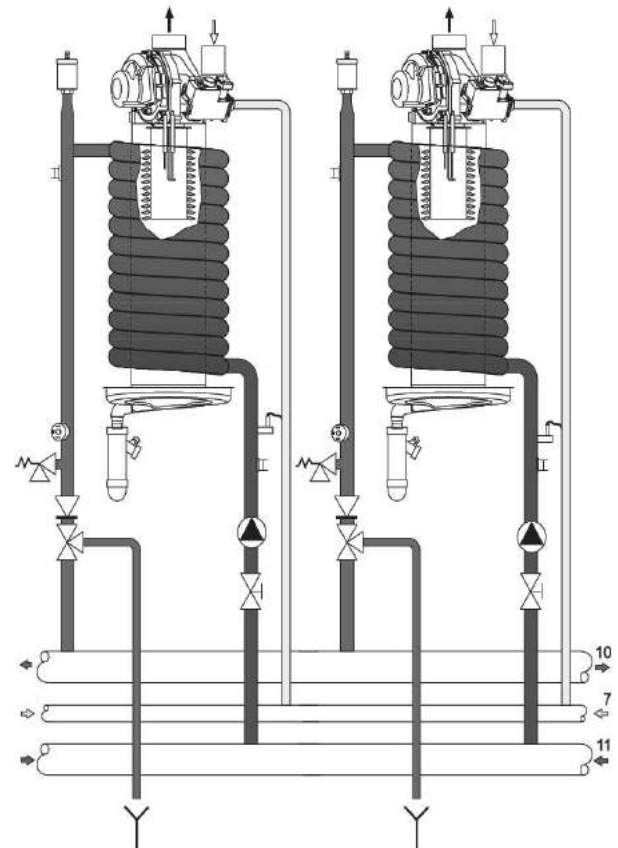


fig. 61 - Plumbing circuit model FUTURIA power 160 - 250

5.3 Water circuit

FUTURIA power model 80 – 125

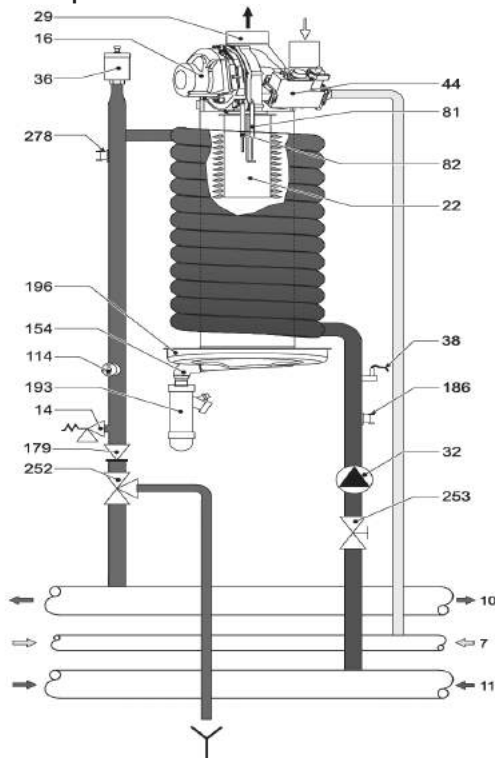


fig. 60 - Water circuit model FUTURIA power 80 - 125

5.4 Technical data table

The column on the right gives the abbreviation used on the data plate

Data	Unit	FUTURIA power 80	FUTURIA power 125	FUTURIA power 160	FUTURIA power 250	
Max. heating capacity	kW	75.0	116.0	150.0	232.0	(Q)
Min. heating capacity	kW	17.0	25.0	17.0	25.0	(Q)
Max. Heat Output in heating (80/60°C)	kW	73.5	113.7	147.0	227.4	(P)
Min. Heat Output in heating (80/60°C)	kW	16.7	24.6	16.7	24.6	(P)
Max. Heat Output in heating (50/30°C)	kW	79.5	123.0	159.0	246.0	
Min. Heat Output in heating (50/30°C)	kW	18.3	26.9	18.3	26.9	
Efficiency Pmax (80-60°C)	%	98.0	98.0	98.0	98.0	
Efficiency Pmin (80-60°C)	%	98.5	98.5	98.5	98.5	
Efficiency Pmax (50-30°C)	%	106	106	106	106	
Efficiency Pmin (50-30°C)	%	107.5	107.5	107.5	107.5	
E efficiency 30%	%	109	109	109	109	
Gas supply pressure G20	mbar	20	20	20	20	
Max. gas delivery G20	m³/h	7.94	12.38	15.88	24.76	
Min. gas delivery G20	m³/h	1.8	2.65	1.8	2.65	
Gas supply pressure G31	mbar	37	37	37	37	
Max. gas delivery G31	kg/h	5.87	9.08	11.74	18.16	
Min. gas delivery G31	kg/h	1.33	1.96	1.33	1.96	
Efficiency class Directive 92/42 EEC	-		★★★★	★★★★	★★★★	
NOx emission class	-	5	5	5	5	(NOx)
Max. working pressure in heating	bar	6	6	6	6	(PMS)
Min. working pressure in heating	bar	0.8	0.8	0.8	0.8	
Max. heating temperature	°C	95	95	95	95	(tmax)
Heating water content	litres	13	15	26	30	
Protection rating	IP	XSD	XSD	XSD	XSD	
Power supply voltage	V/Hz	230V/50Hz	230V/50Hz	230V/50Hz	230V/50Hz	
Electrical power input	W	285	390	570	780	
Empty weight	kg	110	115	190	210	
Type of unit			B23			
PIN CE			0461B50879			

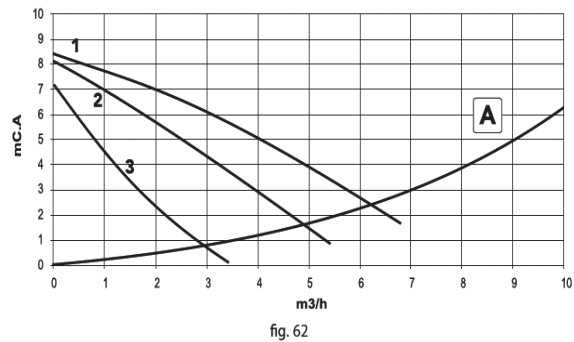


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Circulating pump head / pressure losses

Pressure losses model FUTURIA power 80 – 125

Pressure losses model FUTURIA power 80 - 125



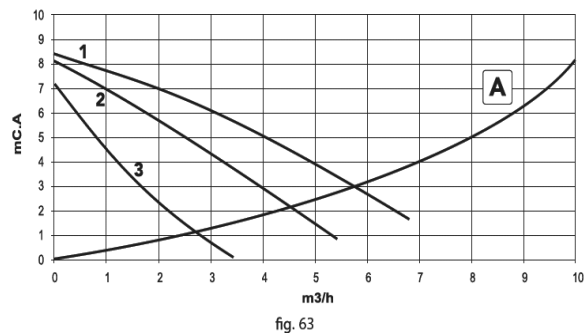
A Boiler pressure losses

1 - 2 - 3 Circulating pump speed

Circulating pump head / pressure losses

Pressure losses model FUTURIA power 160 – 250

Pressure losses model FUTURIA power 160 - 250



A Boiler pressure losses

1 - 2 - 3 Circulating pump speed

5.6 Wiring diagram

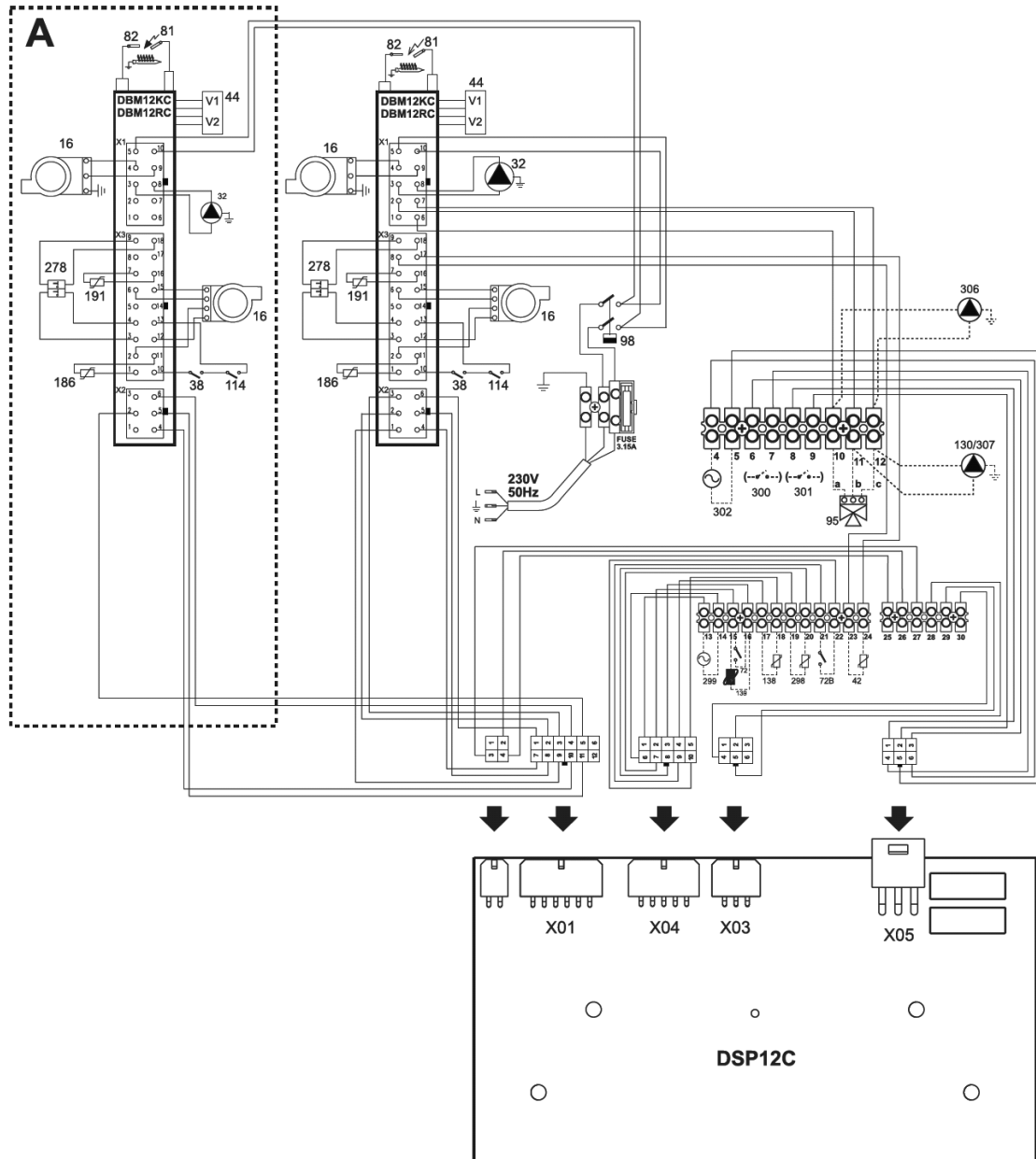


fig. 64 - Wiring diagram

A FUTURIA power model 160 – 250 only.

A Important: Before connecting the room thermostat or the remote timer control, remove the jumper from the terminal block located in the electrical box of the FUTURIA power boiler.

Declaration of conformity

Manufacturer: FERROLI S.p.A.

Address: Via Ritonda 78/a 37047 San Bonifacio VR Italy

Declares that this unit complies with the following EU directives:

- Gas Appliance Directive 2009/142
- Efficiency Directive 92/42
- Low Voltage Directive 73/23 (amended by 93/68)
- Electromagnetic Compatibility Directive 89/336 (amended by 93/68)

President and Legal Representative

Cav. del Lavoro

Dante Ferroli



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